

ABSTRACT OF THE DISCLOSURE

[0041] Methods and apparatuses for wafer support and release using sacrificial materials in wafer processing. In one embodiment, a solution of a sacrificial polymer is spray-coated on the wafer bump side to form a thin layer of the sacrificial polymer after solvent vaporization. An adhesive layer is then used to attach the wafer bump side onto a wafer support substrate over the sacrificial polymer to support the wafer in backside processing. After wafer thinning and backside metal deposition, the wafer is exposed to heat to thermally decompose the sacrificial polymer into gases. The decomposition of the sacrificial polymer reduces the adhesion of the adhesive layer to the bump side of the wafer such that, when the support substrate is detached from the wafer, the adhesive layer is detached together with the support substrate from the wafer bump side, leaving almost no residual traces.